

Abstract of the Disclosure

Wireless communications devices, such as mobile telephones and pagers, have recently been allowed to operate at higher frequencies in the 27-32 Giga-Hertz range. These higher-frequency devices typically include a multi-tiered electronic assembly, which includes an integrated-circuit chip, a chip carrier, and a main circuit board, with the chip carrier sandwiched between the chip and the main circuit board. Testing these multi-tiered assemblies conventionally entails manually coupling test probes to specific contact regions of the circuit board, applying test signals to the board, and ultimately keeping or discarding the entire board based on the testing. This method is not only slow and wasteful, but sometimes requires the circuit board to include extra ground contacts that can disrupt normal circuit operation. Accordingly, the present inventors have devised unique test probes and related systems and methods for testing these and other high-frequency electronic assemblies. One unique probe structure includes at least one signal contact surface for contacting a signal-port trace of an electronic assembly and at least one substantially larger ground contact surface for contacting a ground pad of the electronic assembly. In another unique probe structure, a ground probe has a contact surface and a non-contact surface for overhanging a portion of a signal-port trace and thereby establishing a desired characteristic impedance. And yet another unique probe structure includes contacts for communicating electrical bias signals to the electronic assemblies, facilitating more rapid and cost-effective testing.

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